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ABSTRACT

This paper reports on a Missouri study that compared block scheduling to traditional schedules in small high schools (schools with fewer than 500 students in grades 9 to 12). The study focused on small-school administrator and teacher perceptions of the effects of block scheduling on student achievement, school climate, and teacher methodology. Only those schools that had implemented some form of block scheduling during or before the fall of 1996 were considered for the study. Principals of 101 high schools that met the definition of a small high school were mailed questionnaires and asked to randomly select three teachers. The questionnaire was divided into four categories: student achievement, school climate, teacher methodology, and an overview section. A total of 62 administrators and 152 teachers participated in the study. The results indicate that teachers and administrators generally believe block scheduling has improved student achievement. Educators perceived an improvement in the quality of student work, depth of subject matter covered, student retention of material, and an increase in enrollment in advanced courses. However, when teachers were divided by subject area, math/science teachers did not necessarily agree with this general assessment. Overall, it was felt that block scheduling improved the teacher-student relationship, stimulated changes in teacher methodology, and improved school climate. (Contains 15 references.) (RJM)

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# Block Scheduling in Missouri:

## A Study of Administrator and Teacher Perceptions

Paper presented at the National Council of Professors of Educational Leadership.

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## Block Scheduling in Missouri:

## A Study of Administrator and Teacher Perceptions

Block scheduling seems particularly attractive to small high schools. For example, in the fall of 1996, 163 of the public high schools in Missouri were using some form of block scheduling (Simpson, Gordon, & Valentine 1996). Of these schools, 101 were high schools with grades 9 to 12 student enrollments of less than 500. From this example and trends from other states (Sommerfeld, 1996), it would seem safe to assume that even more small high schools will implement some form of block scheduling in the near future.

Much of the research on block scheduling has focused on only a few schools at a time and on relatively large high schools ( Sessoms, 1995; Davis-Wiley & Cozart, 1996; Carroll, 1994; Queen, Algozzine, & Eaddy, 1996). Considering the trend toward block scheduling in small high schools, this study was designed to compare block scheduling in small high schools to a traditional schedule and to gather statewide data on small school administrator and teacher perceptions of the effect of block scheduling on student achievement, school climate, and teacher methodology. The small high school was defined as 500 or fewer students in grades 9 to 12. To provide some continuity and longitudinal data, only those schools that had implemented some form of block scheduling during or before the fall of 1996 were considered for the study.

### Methodology

The target population consisted of principals and teachers in small high schools in Missouri that had implemented some form of block scheduling by the fall of 1996. Principals of the 101 high schools meeting the selection criteria were mailed a

questionnaire. In addition to completing the questionnaire, each principal was asked to randomly select three teachers, who represented the academic disciplines of English/social studies, mathematics/science, and practical arts/fine arts/ physical education, to complete a teacher survey. All data were gathered by January 1998, and represented 62 administrators and 152 teachers. These responses represented a 61% return rate.

The questions were divided into four categories: student achievement, school climate, teacher methodology, and an overview section. Each of the questions was rated on the Likert scale, and the choices from student achievement and school climate consisted of (a) increased substantially, (b) increased, (c) remains the same, (d) decreased, (e) decreased substantially and (f) no knowledge. The choices for the teaching process and overview categories consisted of (a) strongly agree, (b) agree (c) remains the same, (d) disagree, (e) strongly disagree, and (f) no knowledge. Each statement converts into an internal level of measurement to provide a numerical form by assigning a decreasing numerical score of from five to zero.

The means and standard deviations for each of the responses on the questionnaires were calculated to compare administrator and teacher perceptions of block scheduling. A series of t-tests were completed to test the statistical significance of any differences in the means of the responses of teachers and administrators. An analysis of variance was carried out to compare the statistical significance of any differences in the means of responses across more than two groups. All tests were carried out at the .05 level.

An analysis of the data found that only one school in this study used a 4 X 4 or semester block schedule. The other schools represented in this study used either an

alternating day or modified block schedule. Thus, this study concerns primarily teacher and administrator perceptions of the effects of alternating day and modified block schedules and should not be used to assess 4 X 4 or semester block schedules.

## Results

### Student Achievement

Teachers and administrators were asked to assess student achievement by indicating their perceptions of eight descriptors: (a) student grades, (b) the amount of homework assigned, (c) quality of student work, (d) depth of subject matter covered, (e) curricular scope, (f) student retention of subject matter, and (g) student enrollment in advanced courses. Administrators were additionally asked their perceptions of the impact of block scheduling on ACT and state test scores.

When considering grades, teachers and administrators generally perceived an increase in A and B grades and conversely, a decrease in D and F grades. This generalization held true for both teachers and administrators across types of block schedules and years experience as a teacher. When teacher data were disaggregated according to subject area taught, results showed that math/science and fine arts/practical arts/physical education teachers did not find an increase in A and B grades nor a corresponding decrease in D and F grades. However, English/social studies teachers found a significant increase in A and B grades while showing the biggest decrease in D and F grades.

Teachers and administrators perceived an improvement in four areas: the quality of student work, depth of subject matter covered, student retention of material, and increased enrollment in advanced classes. This generalization held true across years of

experience and, except for teachers in the 4 X 4 school, types of block scheduling. When data were disaggregated by subject area taught, there was general agreement by English/social studies and fine arts/practical arts/physical education teachers about these descriptors. Math/science teachers agreed with their colleagues that enrollment in advanced courses increased, but disagreed in that quality of student work and curricular scope decreased.

Teachers and administrators agreed the amount of homework assigned by teachers decreased. However, administrators perceived substantial increases in curricular scope while teachers in general found a decrease in curricular scope. Again, math/science teachers found substantial decreases in curricular scope while English/social studies and fine arts/practical arts/physical education teachers found a modest increase in curricular scope. When disaggregated by number of years experience with block scheduling, data revealed that teachers with five or more years experience noted an increase in curricular scope while teachers with four years or less experience with block scheduling found a decrease in curricular scope.

-----Insert Table One-----

School climate

School climate was assessed by seven descriptors: (a) teacher and student daily attendance, (b) the teacher/student relationship, (c) frequency of hallway disruptions, (d) class size, (e) the level of stress, (f) types and frequency of disciplinary referrals, and if the school day was more or less hectic. Teachers and administrators agreed that student and teacher attendance improved, that the teacher/student relationship improved substantially, and that hall disruption and major and minor disciplinary issues decreased

substantially. However, class size increased. These observations held true across years of experience, type of block schedule, and subject area taught. There was wide agreement among teachers when data was disaggregated by subject area and years experience with block scheduling that the school day was substantially less hectic because of block scheduling. Teacher stress, though generally perceived to decrease, varied by years experience but not according to subject area taught. Teachers with five or more years experience with block scheduling, with a mean of 1.96, indicated a significant decrease in teacher stress while teachers with less experience indicated a slight increase or no change. Similarly, teachers with five or more years experience with block scheduling found the school day much less hectic than their colleagues with less experience with block scheduling.

In short, administrators and teachers in all categories agreed that block scheduling had a positive impact on the teacher/student relationship, reduced the frequency and severity of disciplinary referrals, reduced teacher stress, and made the school day much less hectic.

------ Insert Table Two-----

Teacher Methodology

This study assessed perceived changes in the teaching process in six ways: (a) lesson planning, (b) assistance given to individual students, (c) use of collaborative or cooperative learning, (d) develop interdisciplinary units, (e) teacher use of the extended learning time to foster critical thinking, and (f) use of a variety of techniques to encompass different learning styles.

There was clear agreement among teachers and administrators that lesson planning was more difficult in block scheduling, but teachers and administrators believed that teachers had much greater opportunity to help individual students, use collaborative or cooperative learning strategies, and improve student critical thinking skills. It was interesting to note that teachers with the least and most experience found that block scheduling provided more opportunity to help individual students in the classroom and promoted cooperative or collaborative teaching techniques. Administrators and teachers in all disciplines perceived substantial increases in the variety of teaching strategies teachers used in their schools. These perceptions of administrators and teachers were remarkably consistent across their years of experience, type of alternating day and modified block schedule, and the primary teaching assignment of the teacher.

----- Insert Table Three -----

Comparisons to traditional scheduling

The underlying assumption was that if teachers and administrators perceived block scheduling as having a negative impact on teaching and learning, they would want to return to a traditional schedule. This study found that administrators across type of block clearly rejected the traditional schedule. Teachers also rejected the traditional schedule but were not as adamant in their opinion. Conversely, when asked if they preferred to remain in a block schedule, teachers and administrators across years of experience, subject areas taught, and type of block supported block scheduling. Teachers in the 4X4 block rejected block scheduling and strongly supported a return to the traditional schedule. Math/science teachers were not as supportive of block scheduling as their peers in other teaching areas, but there was not a statistically significant difference

in the means. When asked if block scheduling had made their school better, administrators and teachers across subject area taught, type of alternating day and modified block schedule, and years of experience agreed that block scheduling had made their school better for students and teachers. Math/science teachers were not as adamant in their agreement as were teachers in other academic areas, but there was no statistically significant difference in the means of math/science teachers and their peers in other academic areas.

----- Insert Table Four -----

Conclusions

Opponents of block scheduling point to fears of decreased student achievement as the primary reason to reject block scheduling. An analysis of the results of this study indicates that teachers and administrators generally believe block scheduling has improved student achievement in their schools. Teachers and administrators in general perceived an improvement in the quality of student work, depth of subject matter covered, student retention of material, and an increase in enrollment in advanced courses. However, when teachers are divided by subject area, math/science teachers do not necessarily agree with this general assessment. These teachers do not perceive the improvement in the quality of student work, depth of subject matter covered, and student retention of material reported by their colleagues in other disciplines.

A close examination of the data indicates that, at the very least, teachers and administrators perceived that block scheduling did not have a profound effect, either positively or negatively, on student achievement in math and science. Concurrently, English/social studies teachers found that block scheduling did significantly stimulate

improvement in student achievement. This study found that block scheduling was perceived to improve achievement in English/social studies and, at the least, did not adversely impact achievement in other academic areas.

Block scheduling should be judged in the crucible of student achievement. However, block scheduling is a relatively recent phenomenon and student achievement is not often impacted by short-term events, but rather by a culmination of events over a period of time. If the way to improve education is to improve instruction (McQuillian, 1997) then block scheduling can impact student achievement by stimulating improvement in instruction. There is little debate that teacher methodology, school climate, and the relationship between students and teachers impacts instruction. Therefore, any stimulus that allows teachers to expand their teaching methodologies, improves school climate, and/or positively affects the student/teacher relationship will, over time, improve instruction and consequently improve student achievement for a wider cross section of the student population.

The evidence from this study is clear that the change to block scheduling does positively impact the student/teacher relationship, does stimulate changes in teacher methodology, and does consistently improve school climate. These perceptions are consistent among administrators in this study across type of block schedule and teachers across years of experience, type of alternating day and modified block schedule, and primary teaching assignment. Improvements in school climate and positive teacher/student relationships often promote teacher experimentation with expanded methodologies. It can only be assumed that as teachers become more proficient at alternative teaching methodologies, the learning styles of more students will be

addressed. If these assumptions are true, then block scheduling may well have a positive impact on student achievement in most, if not all, academic areas.

This research concludes that block scheduling stimulates changes in teacher methodology, serves as a catalyst to improve school climate, and improves student achievement in at least some academic disciplines. This research also concludes that teachers and administrators in small high schools in Missouri are supportive of block scheduling, believe block scheduling has had a positive impact on their school, and are opposed to a return to a traditional schedule.

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Table One

Teacher Perceptions: Student Achievement

| | English/SS | | Math/Sci | | FA/PA/PE | |
|---|---|---|---|---|---|---|
| Variable | Mean | N | Mean | N | Mean | N |
| *Percentage A&B | 3.54 | 57 | 3.08 | 53 | 3.08 | 38 |
| Percentage D & F | 2.77 | 57 | 3.00 | 53 | 2.82 | 38 |
| Homework | 2.71 | 59 | 2.60 | 53 | 2.87 | 38 |
| * Quality of Work | 3.53 | 59 | 2.92 | 53 | 3.34 | 38 |
| Depth of Subject | 3.51 | 59 | 3.08 | 53 | 3.42 | 38 |
| *Curricular Scope | 3.12 | 59 | 2.47 | 53 | 3.26 | 38 |
| Student Retention | 3.36 | 58 | 3.04 | 52 | 3.16 | 38 |
| *Advanced Enrolment | 3.42 | 57 | 3.47 | 51 | 3.83 | 35 |

*Statistically Significant Difference

Table Two

Teacher and Administrator Perceptions: School Climate

| | Administrators | | Teachers | |
|---|---|---|---|---|
| Variable | Mean | N | Mean | N |
| Student Attendance | 3.40 | 62 | 3.23 | 148 |
| *Teacher Attendance | 3.32 | 62 | 3.12 | 135 |
| Teacher/Student Relationship | 3.68 | 62 | 3.60 | 150 |
| *Hallway Disruption | 1.90 | 61 | 2.38 | 146 |
| * Class Size | 2.90 | 62 | 3.49 | 146 |
| Teacher Stress | 2.74 | 58 | 2.77 | 149 |
| Minor Discipline | 2.55 | 62 | 2.71 | 149 |
| Major Discipline | 2.32 | 62 | 2.45 | 148 |
| School Day | 1.69 | 62 | 2.23 | 150 |

*Statistically Significant Difference

Table Three

Teacher and Administrator Perceptions: Teaching Methodology

| | Admin | | Teachers | |
|---|---|---|---|---|
| Variable | Mean | N | Mean | N |
| Lesson Planning | 3.40 | 60 | 3.37 | 150 |
| *Individual Help | 4.13 | 62 | 3.92 | 150 |
| Teaching Strategies | 3.97 | 62 | 3.91 | 150 |
| Interdisciplinary | 3.38 | 61 | 3.24 | 142 |
| *Critical Thinking | 3.88 | 62 | 3.64 | 150 |
| *Learning Styles | 4.13 | 62 | 4.43 | 150 |

* Statistically Significant Difference

Table Four

Teacher and Administrator Perceptions of Block Scheduling

| | Admin | | Teachers | |
|---|---|---|---|---|
| Variable | Mean | N | Mean | N |
| Remain in Block | 4.35 | 62 | 3.99 | 149 |
| Return to Traditional | 1.63 | 62 | 2.15 | 149 |
| Made School Better | 4.16 | 62 | 3.89 | 149 |